

## **REMARKS**

Claims 1-17 were presented for examination.

Claims 1-4 were rejected under 35 U.S.C. § 102.

Claims 5-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over a combination of three references of Bushman (U.S. Patent No. 6,328,877), Tiwari et al (U.S. Patent No. 4,601,810) and Sheeler (U.S. Patent No. 3,582,531).

While claims 12-17 were rejected under 35 U.S.C. § 102(b), they depended from Independent Claim 1, the only independent claim in the application.

### **A. Amended Independent Claim 1**

Claim 1 has been amended to include all of the limitations of claims 1-5.

As is recognized by the Examiner, the two primary references of Okada (U.S. Patent No. 5,334,305) and Bushman do not provide “an opening” for passage of moisture from the environment into said electrode inner chamber. The purpose of the opening is very simple. It allows the solid salt to absorb moisture from the atmosphere so the solid salt will remain in a saturated salt solution. The solid salt is claimed to have a “low deliquescence” which means it has a “strong affinity for moisture and will absorb relatively large amounts of water from the atmosphere if exposed to it, forming a liquid solution.”<sup>1</sup> Also the solid salt is “hygroscopic,” which is defined as “the ability of a substance to attract water molecules from the surrounding environment through either absorption or adsorption.”<sup>2</sup>

Therefore, when the solid salt is both hydroscopic and has a low deliquescence

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<sup>1</sup> *Wikipedia, The Free Encyclopedia*, defining “deliquescence.”

<sup>2</sup> *Wikipedia, The Free Encyclopedia*, defining “hygroscopic.”

point as is specifically claimed, the need for an opening for passage of moisture from the environment into the electrode inner chamber is important. Particularly note the opening is in addition to the “porous plug,” which are two separately claimed elements.

Neither Buschman nor Okada show both the opening and the porous plug.

Tiwari is nonanalogous art that is used to measure magnesium concentration in molten aluminum. While porous alumina 18 is in the bottom of the tube 16 as shown in Tiwari, there is not an upper opening in the cap as is claimed in Independent Claim 1.

Sheeler is also nonanalogous art that is claiming an “electrochemical grounding rod.” While the electrochemical grounding rod has holes 6 in both the bottom and top thereof, the lower holes allow the solution to leak out to penetrate and moisten the soil, which in turn provides low resistance electrical path to ground (see the Abstract). Neither Sheeler or Tiwari show a semi-permanent reference electrode to be used in field applications as is claimed in Independent Claim 1.

#### **B. Constant pH**

In Independent Claim 1, the saturated salt solution has a constant pH. In Sheeler, where moisture is flowing into and out of the electrochemical grounding rod, the pH is obviously changing with the flow of moisture. Even in Okada, as pointed out by the Examiner, the pH may vary from a range of 3 to 12, which is a long ways from being constant. While Applicant recognizes there can be some minor variation in pH, the type of changes as indicated in the references cited by the Examiner is more than a minor variation.

**C. “Obviousness” Taken Too Far**

To reject Claim 1 under the combination of three references of Bushman, Tiwair and Sheeler is carrying the limits of obviousness beyond its logical realm. This is especially true with Sheeler and Tiwari being nonanalogous art that can allegedly be used to modify the analogous art in a way never before anticipated. If such modifications were so obvious, they would have previously been done. To attempt to combine such references is applying hindsight (not obviousness) to create a rejection under 35 U.S.C. § 103, when such rejection does not truly exist.

**C. Claims 12, 14-15, and 17**

All of the limitations as previously contained in dependent Claim 5 have been included in Independent Claim 1 as amended. Therefore, the remaining claims 12, 14-15, and 17, which are dependent upon Independent Claim 1, are patentable over the prior art for the same reason as the preceding claims.

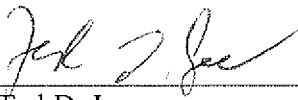
**CONCLUSION**

For the reasons given hereinabove, Applicant respectfully submits that Independent Claim 1 is now patentable over the prior art. If Independent Claim 1 is patentable, the remaining dependent claims of 6-12, 14-15, and 17, which are dependent from Independent Claim 1, are also patentable.

If a telephone conference would aid in this application being allowed, such a telephone conference is requested.

Respectfully submitted,

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